

Application No.: 10/808854
Docket No.: DC7000USCNT

Page 2

Claims

1. (Cancelled)

2. (Currently Amended) A process for recovering polyamide material having an initial average molecular weight from post-industrial and post-consumer products containing polyamide material and insoluble materials, said the process comprising the steps of:

(a) contacting said the post-industrial and said post-consumer products with a suitable solvent in a reactor;

(b) dissolving and partially depolymerizing the said polyamide material in the said suitable solvent to form a solution by operating said the reactor at a predetermined temperature and pressure and for a time sufficient to decrease the average molecular weight of the partially depolymerized polyamide to between about 25% to about 90% of the initial average molecular weight of said polyamide material;

(c) separating said the insoluble material from the said solution using filtration to produce a filtrate solution;

(d) recovering the partially depolymerized polyamide from the filtrate solution of step (c) by adding an additive to the filtrate solution to precipitate the partially depolymerized polyamide material and;

(e) separating the precipitated partially depolymerized polyamide from the filtrate solution; and

(f) repolymerizing the precipitated, partially depolymerized polyamide.

3. (Original) The process of claim 2, wherein the repolymerized polyamide has an average molecular weight substantially the same as the initial average molecular weight.

4. (Previously Presented) The process of claim 2, wherein the solvent is an aliphatic alcohol.

Application No.: 10/808854
Docket No.: DC7000USCNT

Page 3

5. **(Original)** The process of claim 4, wherein the solvent is anhydrous methanol.
6. **(Original)** The process of claim 4, wherein the solvent is a solution containing at least 90% methanol.
7. **(Original)** The process of claim 4, wherein the solvent is anhydrous ethanol.
8. **(Original)** The process of claim 4, wherein the solvent is a solution containing at least 90% ethanol.
9. **(Previously Presented)** The process of claim 2, wherein the reactor is operated at a temperature between 160°C and 210°C and a pressure sufficient to keep the solvent in liquid phase for 30 to 400 minutes.
10. **(Original)** The process of claim 9, wherein the pressure is at least 350 psig.
11. **(Original)** The process of claim 2, wherein the repolymerization occurs through a solid-phase repolymerization process at a temperature between 160°C and the temperature at which the polyamide melts.
12. **(Original)** The process of claim 2, wherein the repolymerization occurs through a melt-phase repolymerization process at a temperature above the melting temperature of the polyamide.
13. **(Cancelled)**
14. **(Currently Amended)** The process of claim ~~13~~ 2, wherein filtration is accomplished using one or more filtration means which is selected from the group consisting of glass fibers, insoluble material residue and a combination thereof.
15. **(Original)** The process of claim 14, wherein the filtration means comprises insoluble material residue that has accumulated on the filtration means.
16. **(Original)** The process of claim 14, wherein the filtration media means is glass fibers.

Application No.: 10/808854
Docket No.: DC7000USCNT

Page 4

17. (Cancelled).

18. (Cancelled)

19. (Cancelled)

20. (Currently Amended) The process of claim ~~18~~ or claim ~~19~~ 2, further comprising the step of purifying the separated solution after the depolymerized polyamide is recovered, and using the purified solution as the solvent in step (a).

21. (Previously Presented) The process of claim 2, wherein the post-industrial and post-consumer products include one or more of carpet waste, glass-reinforced nylon, air-intake manifolds, radiator end-caps, coated fabrics, air bag fabrics and mineral-filled nylon.

22. (Cancelled)

23. (Cancelled)